THE RECOVERY KERNEL

How to Navigate the Recovery Kernel

For People Recovering from Ketamine

Recreational and problematic ketamine use ("K"). A step-by-step route: what to read, in what order, and what outcome the Kernel projects if you follow it. Medically supervised therapy (esketamine, Spravato) is a different context, addressed in Step 8.

> **HARM REDUCTION RESOURCE — NOT MEDICAL ADVICE. IF YOU HAVE BLADDER SYMPTOMS, SEE A UROLOGIST NOW.** Needing to urinate every few minutes, severe urgency, pain in the lower abdomen, pelvis, or flanks, blood in the urine, loss of bladder control, or kidney-area pain. Ketamine-associated uropathy is progressive and can end in bladder removal. Stopping is the only way to halt it, and some damage needs active treatment even after you stop. Urology comes before everything else in this guide.
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> **Call 911** if someone is unconscious or unresponsive after ketamine: roll them onto their side to prevent aspiration, and stay with them. A full k-hole is an emergency, because the person cannot protect their airway and vomiting can cause aspiration. Do not give other substances to "bring them out." **There is no antidote for ketamine.** Combining it with opioids, benzodiazepines, alcohol, or GHB dramatically raises overdose risk. Right upper abdominal pain, jaundice, or dark urine can mean bile-duct injury and needs medical care.
>
> Depression can surface sharply in the first days after stopping. Crisis: call or text 988 · SAMHSA: 1-800-662-4357

1. Before you start

This is a route through the Recovery Kernel for people whose relationship with ketamine has moved from recreational, therapeutic, or experimental use into a pattern that costs more than it gives, and for the people supporting them. The Kernel says this guide differs from the others in several ways. Six rules set the order of everything that follows.

- **The bladder is the emergency, not the brain.** The main organ damage is urological. It needs its own medical track that the Kernel framework does not replace.
- **Withdrawal is mostly psychological, but it is real.** There is no seizure risk like alcohol or benzodiazepines and no opioid-style physical illness, but the glutamate rebound and the depression that emerges can drive immediate relapse.
- **Dissociation was the point, so grounding comes first.** Recovery here requires somatic grounding work as a clinical priority, before any building of expanded states.
- **Treat what the ketamine was treating.** For many people it was depression, trauma, or pain. Those do not disappear with cessation and need direct treatment.
- **Ask about CYP2B6.** If ketamine always hit harder and lasted longer than for others, your exposure per gram was higher than your dose history suggests.

- **Do not wait for test results to start.** The genome refines the plan (Main Book, Quick-Start Step 3; Supplemental Ch. 5, Step 1b).

How chapters are cited. "Main Book" is the Recovery Kernel Main Book (Second Edition, Centurian). "Compendium" is the Complete Protocol Compendium. "Supp. Ch. N" is chapter N of the Supplemental Book. The core chapter is Chapter 23 (How to Recover from Ketamine). Section numbers (§) refer to sections inside it.

> **A note on protocol numbers.** Supplemental Chapter 23 cites Compendium protocols by number, and some numbers do not match the Compendium as printed. It calls Protocol 01 the source of grounding practices and "Shelter" (printed: Emergency Triage), Protocol 03 "exercise" (printed: Sonic Architecture; exercise is Protocol 19), Protocol 17 "Sleep Architecture" (printed: The Nightly Restoration), Protocol 23 the somatic-therapy protocol (printed: Rebuilding the Ledger), Protocol 11 a trauma protocol (printed: Advanced Optimization), Protocol 04 "Dharma Recovery" (printed: Meeting Alternatives), and Protocol 20 the identity protocol (printed: Mapping the Terrain). Its "Protocol 42" for psychedelic-assisted therapy is printed as The Experimental Branch; the Compendium also prints a different Protocol 42, Deploying Anti-Viral Firewalls. This guide cites each protocol by its printed title. If a number and a title disagree, follow the title.
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> For ketamine, watch for redosing mid-experience because a plateau doesn't feel deep enough — the drug itself distorts the ability to judge "is this enough," which is exactly why the plan has to be made before starting.
>
> Redosing is not the only version of this. Watching peers in a treatment setting negotiate a relapse, getting confident advice from someone untrained in your specific situation, or noticing a prescriber treat a prescribed substance more casually than an illicit one can all trigger the same pattern: a felt doubt read as "the plan must be wrong," answered by abandoning it. See **The Commandeering Map**, a companion to this series, for the fuller pattern, including how it can differ by genetic profile and what helps when practice-based resistance alone is not enough.

2. The route at a glance

Steps 0 and 1 come first. Steps 2 to 4 can run at the same time. Steps 5 to 9 overlap and are the work of the first two years. Step 10 is everything after. "P" means Compendium Protocol; "C" means Centurian Paper.

Step	When	What you do	Turn to
0	Day 0	Triage: overdose and k-hole, bladder and bile-duct signs, mixing, psychosis.	Supp. Ch. 23 §0 Main Book, Quick-Start Step 1 Compendium P01
1	Days 0–14	Urology first, if any bladder symptoms. Then ride out the glutamate rebound. Do not be alone in days 1 to 5.	Supp. Ch. 23 §1.4, §3, §8 Compendium P01
2	Weeks 1–4	Read the Main Book in order.	Main Book: Who This Book Is For, Quick-Start, Part One (Ch. 1–5) Supp. Ch. 2, 3

Step	When	What you do	Turn to
3	Weeks 1–4	Order 30× whole-genome sequencing. CYP2B6 is the priority.	Supp. Ch. 5 Step 1 Supp. Ch. 23 §2 Compendium P06
4	Weeks 2–6	Resolve your profile. Work out what ketamine was giving you.	Supp. Ch. 5 Steps 2–3, 6 Supp. Ch. 23 §2
5	Day 1 to Month 6	Build the foundation: NMDA and glutamate support, methylation, cognition, sleep. Urological support only via your urologist.	Supp. Ch. 23 §4 Supp. Ch. 5 Phase One Compendium P17, P18, P07
6	Weeks 1–12, then ongoing	The craving is the exit. Learn the four types and the grounding interrupt.	Supp. Ch. 23 §5 Compendium P05, P20, P21, P08
7	Weeks 1–8, then ongoing	Grounding architecture: somatic therapy, daily anchoring, embodied exercise.	Supp. Ch. 23 §6, §8 Supp. Ch. 39
8	From week 1	Treat the underlying depression, trauma, or pain. Decide about therapeutic ketamine only with addiction psychiatry.	Supp. Ch. 23 §1.3, §8 Supp. Ch. 39 Compendium P13, P42
9	Months 2–12+	Transcendence architecture: meditation, breathwork, float, flow. Integration.	Supp. Ch. 23 §6 C-28; Compendium P04 Compendium P19, P29
10	Months 3+, Year 1 to 10	Identity, inventory, work, family. Steward: review, transplant, guide others.	Supp. Ch. 42, 43, 44, 51 Compendium C-28, P24, P13 Supp. Ch. 5 Step 6

3. The route, step by step

Step 0 — Triage (Day 0, before everything)

Ketamine overdose is primarily a respiratory and aspiration emergency, not the opioid pattern. It keeps airway reflexes better than most anesthetics, but at high doses or with other depressants it can cause complete unresponsiveness, vomiting without protecting the airway, respiratory depression, a racing heart and high blood pressure (dangerous with cardiac conditions), and acute psychosis that can look like schizophrenia. In a k-hole: do not leave the person alone, place them in the recovery position, clear hazards, and monitor breathing. If breathing becomes irregular or stops, call 911. A full k-hole usually lasts 30 to 90 minutes at recreational doses, and the person will emerge.

Screen the body too. Bladder symptoms mean a urologist now. Right upper abdominal pain, elevated liver enzymes, or jaundice can mean ketamine-related bile-duct injury (cholangiopathy), which needs hepatology and cessation. Keep the mixing rule in mind: no opioids, benzodiazepines, alcohol, or GHB, and if you use several substances, the guide for each applies.

Turn to: Supp. Ch. 23 §0 (overdose; the k-hole; the bladder emergency). Main Book, Quick-Start Boot Sequence, Step 1. Compendium Protocol 01, Emergency Triage, for an acute crisis state.

Step 1 — Urology first, then the glutamate rebound (Days 0–14)

If you have any urinary symptoms, your first appointment is a urologist, not addiction medicine or a therapist. The Kernel describes four stages. Early irritative disease (frequency, urgency, painful urination) is mostly reversible with cessation. Intermediate disease brings fibrosis, shrinking bladder capacity, and possible kidney involvement, and needs urgent urology, cystoscopy, and kidney function tests, with cessation non-negotiable. Severe end-stage disease is bladder contracture that may need surgical removal and urinary diversion, and no recovery protocol reverses it. Bile-duct involvement is less common but documented. The urology team may add hydrodistension and bladder instillations, and the Kernel recommends urology follow-up every three months for at least the first year of cessation.

Then the withdrawal. Hours 0 to 24: anxiety, restlessness, dysphoria, strong craving, and possible perceptual disturbances as upregulated NMDA receptors fire without ketamine's block. Reduce stimulation, because everything feels amplified, and do not use other substances, especially benzodiazepines unless prescribed, because cross-dependence can develop. Days 1 to 5: peak psychological withdrawal, with often severe depression, anxiety, insomnia, vivid dreams, fog, possible depersonalization, and the emergence of whatever the ketamine was masking. This is the highest relapse window: do not be alone. Days 5 to 14: stabilization, with genuine emotions emerging that the dissociation was suppressing, which is evidence of becoming present, not of a mistake. If you are a CYP2B6 poor metabolizer, onset may be delayed and symptoms longer and more severe, and your dose history may underestimate your true exposure.

Turn to: Supp. Ch. 23 §1.4 (ketamine-associated uropathy: the stages), §3 (the withdrawal syndrome; the CYP2B6 logjam), and §8 (the urological medical track). Compendium Protocol 01, Emergency Triage, for the acute anxiety of early withdrawal.

Step 2 — Read the Main Book (Weeks 1–4)

Read it in order once you are physically stable. If you are overwhelmed, the Quick-Start Boot Sequence is designed to be read on its own. Read "Who This Book Is — and Is Not — For" first: it names situations where the supplement protocols need medical modification, including active psychosis, pregnancy, and severe liver disease.

Read in this order: Who This Book Is For → Quick-Start Boot Sequence → Part One: Ch. 1 (Why Willpower Isn't Enough), Ch. 2 (MTHFR), Ch. 3 (COMT), Ch. 4 (CYP450, which matters for CYP2B6 and CYP3A4), Ch. 5 (When Systems Collide) → Ch. 7 (Harm Reduction), only if you are still using → Part Two, the case files (Chapter 6). Ch. 8 (Oxytocin Protocol) is experimental and specialist-only. Ch. 9 (Epigenetic Playground) belongs to Steps 9 and 10. Appendix A and Appendix B are reference.

Then add: Supp. Ch. 2 (Clarity · Restoration · Manning), which includes Case 09, the ketamine case, and sets your expectations. Supp. Ch. 4 (The Braking System), since Case 09 is a GABRA2 and trauma profile. Supp. Ch. 39 (Complex Trauma and the Substance Connection). Supp. Ch. 3 (The Addict Virgin Problem) recalibrates timelines for a damaged system. Supp. Ch. 1 (Why They Left You There) is optional reading for the shame.

Step 3 — Get your DNA (Weeks 1–4)

The Kernel's recommended route is 30× whole-genome sequencing, which returns a VCF file, a one-time asset you keep. A consumer SNP array is an acceptable start. A clinical pharmacogenomic panel adds clinical-grade CYP calls. Homocysteine, B12, and RBC folate are functional markers you can recheck quarterly.

For ketamine, **CYP2B6** is the priority: it converts ketamine to norketamine, and the Compendium's practitioner reference labels poor metabolizers ("*6/*6" or "*18") as carrying "Dissociative Logjam Risk." Next come **CYP3A4** (a secondary pathway, so inhibitors such as grapefruit juice, clarithromycin, and fluconazole can dramatically raise ketamine levels), **COMT**, **MTHFR**, **DRD2/ANKK1**, **BDNF**, and **SLC6A4**. Until results arrive: did ketamine hit harder or last longer than for others at the same dose (likely CYP2B6 poor metabolizer); was the appeal the end of anxious rumination (Sage) or the euphoric, boundary-dissolving social state (Warrior); did it treat a depression nothing else touched (MTHFR); is there a family history of addiction or a chronic sense of "something missing" (DRD2)?

> **Confirm what you are ordering.** Supp. Ch. 5 specifies 30× whole-genome sequencing with VCF output. "WGBS" more commonly names whole-genome bisulfite sequencing, a DNA-methylation assay that is not built to call variants such as MTHFR C677T. Ask the lab for a standard variant file (VCF).

Turn to: Supp. Ch. 5, Step 1. Supp. Ch. 23 §2 (the DNA testing panel for ketamine recovery; phenotyping without test results). Compendium Protocol 06, Phenotype Assessment. Main Book Ch. 2 and Ch. 3 self-assessments.

Step 4 — Resolve your profile (Weeks 2–6)

The Kernel's question is what ketamine was actually giving you. Write your profile down and carry key results on a card.

If your result is...	What changes	Source
CYP2B6 poor metabolizer	"Dissociative Logjam": higher peak levels from the same dose, longer k-holes, longer cognitive impairment, and possibly faster bladder damage from longer urothelial exposure. Tell your recovery physician and your urologist that your dose history may understate exposure.	Supp. Ch. 23 §§2, 3
CYP3A4 inhibitors	Grapefruit juice, clarithromycin, and fluconazole can raise ketamine levels dramatically, which matters for past patterns and for avoiding accidental exposure. Inducers such as St. John's wort and rifampin speed clearance.	Supp. Ch. 23 §2

If your result is...	What changes	Source
COMT Met/Met (Sage)	The appeal was escape: the k-hole as the end of the ruminating, worrying stream. Anxiety and depression are the underlying conditions to treat directly.	Supp. Ch. 23 §2
COMT Val/Val (Warrior)	The appeal was the euphoric, boundary-dissolving social state: everything felt possible and connected. Build those states through other means.	Supp. Ch. 23 §2, §6
MTHFR variants	Methylation impairment lowers baseline serotonin and dopamine synthesis, which may explain why ketamine treated a depression nothing else did. 5-MTHF addresses this directly.	Supp. Ch. 23 §§2, 4.1; Main Book Ch. 2
DRD2 A1, BDNF Met, SLC6A4 s/s	DRD2 A1: the fullness of the dissociative state was compelling, so build several reward sources. BDNF Met: cognitive repair needs higher exercise intensity. SLC6A4 s/s: higher anxiety sensitivity, so rebuild serotonin.	Supp. Ch. 23 §2
GABRA2 high-risk plus early adversity	Case 09's profile: the PTSD is biological, and ketamine's NMDA blockade interrupted hyperactive glutamate loops. Trauma-informed care is foundational, not optional.	Supp. Ch. 2 Case 09; Ch. 4

Turn to: Supp. Ch. 5, Steps 2, 3, and 6 (gene systems, combined profiles, profile template). Supp. Ch. 23 §2. Main Book Ch. 5 and Appendix A.

Step 5 — Build the foundation (Day 1 to Month 6)

Three systems need rebuilding: NMDA and glutamate function (the primary target), dopamine and serotonin (secondary), and cognitive architecture (the prefrontal and hippocampal functions that blockade impaired), all on a methylation foundation. The Kernel calls magnesium glycinate the most important acute supplement in ketamine withdrawal, starting day 1, because magnesium is an endogenous NMDA channel blocker that gently buffers the glutamate rebound. NAC restores glutamate homeostasis; taurine, L-theanine, and omega-3 support NMDA recovery. 5-MTHF may be the single most important supplement if ketamine was treating depression. For cognition, the Kernel names exercise as the primary intervention: 30 to 60 minutes of aerobic activity daily, which drives cognitive recovery faster than any supplement. Cognitive recovery generally takes 3 to 12 months and memory 3 to 6 months. New skill learning and choline and lion's mane support add to it. Serotonin support (5-HTP) must not be combined with SSRIs or SNRIs without a physician. Sleep repair covers the vivid dreams of REM rebound.

The urological supplements in Supp. Ch. 23 §4.5 are for discussion with your urologist only, and some, such as high-dose vitamin C, can acidify urine and worsen irritation. The Kernel says consistent plain-water hydration is the most important urological intervention after cessation, because it dilutes ketamine metabolites in the urine. The dose tables are in the chapter below. Run every addition past a pharmacist and an interaction checker (Drugs.com or Medscape). The peptide layer in Supp. Ch. 23 §4.7 is labeled by the Kernel as research compounds needing physician discussion; its BPC-157 bladder-healing idea is described as mechanistically plausible with limited clinical evidence, so it is not a self-start step.

Turn to: Supp. Ch. 23 §4.1 (methylation), §4.2 (NMDA and glutamate support), §4.3 (cognitive recovery), §4.4 (dopamine and serotonin), §4.5 (urological recovery track; urologist first), §4.6 (sleep), §4.7 (peptides, physician only). Supp. Ch. 5, Phase One. Main Book Ch. 2, §2.4–2.5. Compendium Protocol 17 (The Nightly Restoration), Protocol 18 (Eating for Restoration), Protocol 07 (Neuroplasticity), Protocol 03 (Sonic Architecture, including the 40 Hz protocol the Kernel mentions), and Centurian Paper C-32 (The Insomnia Architecture).

Step 6 — The craving is the exit (Weeks 1–12, then ongoing)

The Kernel's central insight: the craving is not for the drug, it is for the exit it provided. It arrives when the present moment becomes unbearable, and ketamine offers the most efficient exit. So you are meeting a need for exit from an overwhelming state, and providing a different exit that does not require dissociation. Four craving types: reality escape (the most common: the present is too much), depression and anhedonia (the flatness is unbearable), curiosity and exploration (the craving is for the expanded space, not the drug), and social or contextual (specific music, friends, or times of night).

The Kernel's 5-minute interrupt: identify the type; ground immediately, using five things you can see, four you can touch, three you can hear, two you can smell, and one you can taste, which is prefrontal anchoring that interrupts the exit; four cycles of 4-7-8 breathing; cold water on the face and wrists, which triggers the dive reflex and a parasympathetic shift within seconds; make one contact, since isolation is part of the pattern; then meet the need through your natural state (movement, breathwork, meditation, creative work); and document trigger, type, intensity, action, and outcome. For a social or contextual craving, leave the context first.

Turn to: Supp. Ch. 23 §5 (the craving is the exit; the four types; the 5-minute interrupt). Compendium Protocol 05 (Digital Detox), Protocol 20 (Mapping the Terrain), Protocol 21 (Reading the Collapse), Protocol 08 (Social Environment).

Step 7 — The grounding architecture (Weeks 1–8, then ongoing)

The Kernel calls this the phase that distinguishes ketamine recovery from every other guide in the series, and marks it critical: before you build access to expanded states, you must be able to inhabit ordinary ones. This is somatic work, the work of coming home to the body that ketamine was helping you leave, and for many people the body is where the unprocessed trauma, grief, and pain live. Its tools: somatic therapy (EMDR, somatic experiencing, sensorimotor psychotherapy), daily 5-4-3-2-1 grounding practiced until it is as automatic as the old use, exercise for embodiment (the goal is presence in a body in motion, not fitness), and safe physical contact. If you have persistent depersonalization or derealization, which can last months, the Kernel points to somatic therapy as primary, daily grounding, and SSRIs, which have evidence in depersonalization disorder, and it says to avoid cannabis and other dissociative substances, which can significantly worsen it.

Turn to: Supp. Ch. 23 §6 (the grounding architecture) and §8 (managing persistent dissociation). Supp. Ch. 39 (Complex Trauma and the Substance Connection). Compendium Protocol 19 (The Body in Motion).

Step 8 — Depression, trauma, pain, and therapeutic ketamine (from week 1)

A significant share of people with ketamine use disorder started partly because it treated a depression nothing else touched, and that depression returns, often more intensely, in early recovery, so it needs direct treatment. The Kernel's options in order of preference: 5-MTHF with methylcobalamin, tried for 6 to 8 weeks if MTHFR variants are suspected; SSRIs or SNRIs, guided by CYP2D6 and CYP2C19, with adequate trial periods because response can be complicated by NMDA disruption; supervised therapeutic ketamine or esketamine if the depression is genuinely treatment-resistant, which requires addiction-psychiatry input, not a general ketamine clinic; and TMS, a non-drug option with strong evidence in treatment-resistant depression. Trauma work belongs in months 1 to 6 once stable, and the Kernel says it is not optional for durable recovery.

Therapeutic ketamine and this guide intersect in three ways. Therapeutic use that has escalated into self-administration or use outside the clinical context is now recreational use disorder. Someone in ketamine therapy who is also recovering must have both the clinic and the recovery support coordinated. And someone with a history of heavy recreational use who is considering therapy needs specialist consultation first, since prior heavy use may have altered NMDA architecture in ways that affect response and risk. In Case 09 the Kernel's clinical question is whether therapeutic ketamine with trauma-focused therapy is the right matched prescription, and it says that is a conversation for a psychiatrist, not something to manage alone.

Turn to: Supp. Ch. 23 §1.3 (when ketamine is the treatment) and §8 (addressing the underlying depression). Supp. Ch. 2 Case 09. Supp. Ch. 39. Compendium Protocol 13 (The Pharma Trap) for medication review, and Protocol 42 (The Experimental Branch) for the Kernel's cautionary treatment of emerging interventions.

Step 9 — The transcendence architecture (Months 2–12+)

The Kernel's frame is "the counterfeit sacred": ketamine simulates states people have sought for centuries through contemplative practice while damaging the body, and recovery is building genuine access to those states rather than abandoning the search. Its options: meditation, with absorption states that may take years of daily practice ("the journey is the point"); holotropic or pranayama breathwork; float therapy (sensory reduction without NMDA damage, which some recovery communities use as a transition practice); flow states through physical mastery; and, only through licensed clinical programs and never self-administered, integration therapy or psychedelic-assisted therapy where appropriate. The Kernel says this is the most demanding natural architecture in the series, and potentially the most rewarding, and that the difference from ketamine is that these paths build integration, session by session.

> **A caution this guide adds (not in the Kernel).** Hyperventilation-based breathwork and sensory-deprivation float sessions can provoke panic, dissociation, or worse in people with a psychosis history, seizure history, heart conditions, or persistent depersonalization. If any of those applies, ask your clinician before trying them, and start with meditation and grounding. Sequence matters: the Kernel itself says grounding must come first.

Turn to: Supp. Ch. 23 §6 (the transcendence architecture; the counterfeit sacred). Centurian Paper C-28 (The Recast). Compendium Protocol 04 (Meeting Alternatives, which the Kernel calls Dharma Recovery), Protocol 19 (The Body in Motion), Protocol 29 (The Peacetime Paradox), and Protocol 42 (The Experimental Branch) for psychedelic-assisted therapy.

Step 10 — Identity and the long game (Months 3+, Year 1 to Year 10)

The identity work is becoming someone who inhabits reality rather than escaping it, and integrating what was genuinely valuable in the states you experienced. What was real about the insights, and what was the expansion pointing toward? Full Inventory is a structured 180-day plan, and Amends to Self puts the person who lived through it first. Family, money, and work follow. The Kernel maps the first 12 months of ketamine recovery in detail. After that, navigation shifts from repair to stewardship. Section 4 shows how. Standing tools: Supp. Ch. 44 (The Transplant: redirect the devotion and daily structure the pattern required into a practice that grows). Supp. Ch. 6 (Stay Non-Addicted) and Compendium Protocol 02 (Behavioral Addictions, with its "Mask Change" caution on addiction transfer). Compendium Protocol 13 (The Pharma Trap). Supp. Ch. 38. Supp. Ch. 5, Step 6 (a weekly AI check-in profile, a reasoning tool and never a provider).

Turn to: Supp. Ch. 42 (Full Inventory). Supp. Ch. 43 (Amends to Self). Centurian Paper C-28 (The Recast). Compendium Protocol 24 (Returning to Work), Protocol 22 (The Family Field), Protocol 16 (The Isolation Spiral), Protocol 25 (The Open Door). Supp. Ch. 51 (Family & Support Network Guide): give it to the people who love you.

4. How navigation changes at Years 3, 5, and 10

Shading shows how much attention each track needs. Darkest is primary focus, then active, then maintenance. White cells with gray text are standing safeguards: low effort, never dropped. Numbers in brackets refer to the shifts listed below the table.

Track	Months 0–24 (foundation)	Year 3 (consolidate)	Year 5 (build out)	Year 10 (steward)
Safety and urology	Urology first; no mixing	Bladder and kidney checks spaced out [1]	Annual bladder and kidney check	No mixing, ever; bladder watch [8]
Biology and genome	CYP2B6 first; COMT, MTHFR	Retest labs; step stack to upkeep [2]	Prescriber card: CYP2B6, CYP3A4	Re-check with new meds and age
Cues and context	Cue exits: music, friends, nights	Novel cues; exit, ground	Triggers shift: overwhelm, grief [5]	Same plan, rehearsed
Grounding and presence	5-4-3-2-1, cold; somatic therapy	Presence is the default [3]	Daily grounding, embodied practice	Practice still daily
Cognition, sleep, mood	K-fuzz clears; treat depression	Clarity back; the mood decision [4]	Mood plan, clinician-led	Stress plan, sleep habits
Transcendence architecture	Ground first, then build	Meditation, breath, float	Practice deepens; integration work [6]	Practice as a way of life
Identity and Manning	Identity from month 3; inhabit your life	Transplant; return to work	Manning: guide for others [7]	Mentor or run a group

The eight shifts

1. **Year 3, bladder and kidney checks are spaced out.** The Kernel sets urology follow-up every three months for at least the first year of cessation, and says early-stage damage is mostly reversible (Supp. Ch. 23 §1.4, §8). What happens after that depends on what the urologist found, so the interval is theirs to set.
2. **Year 3, the stack moves from building to upkeep.** The Kernel places NMDA normalization, dopamine and serotonin recovery, and largely restored cognition within months 2 to 12 (Supp. Ch. 23 §3). Retest labs (Supp. Ch. 5 Step 1a) and step down toward maintenance. The Trinity chapter says supplements are taken until stable, then tapered and resumed if the system destabilizes; Main Book Ch. 2 treats MTHFR support as maintenance, not cure. Step down to maintenance, not to zero.
3. **Year 3, presence becomes the default.** The Kernel says persistent depersonalization and derealization can last months and responds to somatic work and daily grounding (Supp. Ch. 23 §8). By year 3, being in your body and your life should be the baseline, not an effort.
4. **Year 3, the mood decision.** If depression outlasted the early recovery, the Kernel's ordered options are methylation support, SSRIs or SNRIs, TMS, and,

only with addiction-psychiatry input, supervised therapeutic ketamine (Supp. Ch. 23 §8). This is a clinician-led choice, made when you are stable.

5. **Year 5, triggers shift from cues to overwhelm.** The Kernel says the craving arrives when the present moment becomes unbearable (Supp. Ch. 23 §5). As contextual cues fade, what remains is grief, overload, and stress, so keep the grounding interrupt and Protocol 21 ready.
6. **Year 5, the practice deepens.** The Kernel says full absorption states may take years of daily practice (Supp. Ch. 23 §6), so this is when meditation and integration work move to primary focus. Follow this guide's caution about breathwork and float sessions if any risk factor applies.
7. **Year 5, Manning.** This is the Trinity's third stage (Supp. Ch. 2). This is extrapolation: guiding others who are in the same territory, with the lived knowledge of both the exit and the way back.
8. **Year 10, no mixing, and the bladder stays on watch.** There is no antidote for ketamine, and combining it with GHB, opioids, alcohol, or benzodiazepines dramatically raises risk (Supp. Ch. 23 §0). The Kernel also says the bladder is affected by any return to use, and that early damage is reversible only with cessation. Keep periodic urology and mention your history to every clinician.

What is sourced and what is extrapolated. *Shifts 3, 5, and 8 rest directly on Kernel text. Shifts 2, 4, and 6 apply Kernel rules at a timing chosen for this guide. Shifts 1 and 7 are extrapolations. The Kernel's detailed ketamine timeline ends at month 12, and its WHEN Correlator puts deep-root reversal at 2 to 5 or more years, so years 3, 5, and 10 are projections.*

5. What outcome to expect

The short version

If you do the route above, with the bladder handled first, the glutamate rebound ridden out with support, the foundation built, the craving met as an exit rather than a desire, grounding established before anything else, the underlying depression or trauma treated, and then the transcendence architecture built slowly, this is the outcome the Kernel projects:

- **You get through the medical window.** Bladder and bile-duct problems are caught and treated, overdose is avoided, and you do not manage withdrawal alone or with benzodiazepines.
- **Weeks 2 to 8 are the most important psychological work.** The Kernel says the person who dissociated through ketamine is now learning to inhabit their life, and cognitive fog lifts, emotional range widens, and "realness" returns.
- **By months 2 to 12, the NMDA system substantially normalizes,** dopamine and serotonin baselines recover, cognition is largely restored (often matching or exceeding pre-use), and early bladder damage begins to heal if cessation holds.
- **By years 3 to 5 the work is maintenance and building. By year 10 you are a steward,** carrying a small set of standing safeguards.

The Kernel does not promise zero risk or that ketamine bladder damage is always reversible. It states that end-stage damage is irreversible, that the underlying condition needs its own treatment, and that the psychological dependence can be as entrenched as any in the series.

Milestones, in order

Milestone	When	Expected outcome	Source	Basis
Urology and safety	Day 0 onward	Bladder symptoms assessed by a urologist; bile-duct signs checked; no mixing. Cessation is the only way to halt progression.	Supp. Ch. 23 §§0, 1.4	Clinical fact
Glutamate rebound	Hours 0–24	Anxiety, restlessness, dysphoria, strong craving, and possible perceptual disturbances. Reduce stimulation; no benzodiazepines unless prescribed.	Supp. Ch. 23 §3	Clinical timeline
Peak psychological withdrawal	Days 1–5	Often severe depression and anxiety, insomnia, fog, and emergence of what ketamine masked. The highest relapse risk. Do not be alone.	Supp. Ch. 23 §3	Clinical timeline
Stabilization	Days 5–14	Rebound subsiding. Genuine emotions emerging. Exercise begins. Grounding work starts.	Supp. Ch. 23 §3	Kernel projection
Early recovery	Weeks 2–8	Progressive NMDA normalization. Clarity returning. The "realness" of experience returns. Grounding work is the primary focus.	Supp. Ch. 23 §3	Kernel projection
Memory and cognition	3–6 months (memory); 3–12 months (cognition)	Memory substantially recovers in 3 to 6 months of abstinence. Cognitive fog clears faster with vigorous exercise.	Supp. Ch. 23 §§1.2, 4.3	Kernel projection
System normalization	Months 2–12	NMDA, dopamine, and serotonin largely normalized. Cognition largely restored. Bladder beginning to heal if cessation is maintained.	Supp. Ch. 23 §3	Kernel projection
Deep-root reversal	2–5+ years	Prefrontal recovery and epigenetic reversal continue. Some changes may be partial.	Supp. Ch. 36	Kernel projection
Steward phase	Years 3–10	Repair tracks at maintenance. Practice deepening. Service. Standing safeguards, including urology.	Section 4 of this guide	Extrapolated

The Kernel's own 12-month numbers for one ketamine profile

Supplemental Chapter 2 gives projected outcomes at 12 months for an adherent protocol compared with standard treatment. Case 09 is a 33-year-old with chronic PTSD and childhood trauma who has done years of therapy (CBT, EMDR, DBT), started ketamine at parties, found it gave her hours of complete absence from intrusive memories, and now uses weekly. Her profile is GABRA2 high-risk with early adversity, probable COMT Met/Met, and possible BDNF Met. The Kernel calls this the most complex profile in the series: two systems need simultaneous support, the GABA architecture and the trauma residue, and neither alone is sufficient.

Case	Measure	Kernel protocol	Standard treatment
Case 09	Significant PTSD symptom reduction at Month 6 (biology plus therapy)	67%	20%
Case 09	Recreational ketamine cessation or medical redirection	62%	25%
Case 09	Sleep quality improvement at Month 6	72%	25%
Case 09	Functional daily living improvement at Month 12	70%	30%

How to read these numbers. *The Kernel describes them as archetype projections, "probability estimates" for an adherent, biologically confirmed 12-month protocol, drawn from cited studies. They are not guarantees, and the Main Book states that it is not reporting a randomized controlled trial of the Kernel itself. Case 09 is a weekly user with PTSD and its protocol centers on trauma-informed care, so the numbers do not describe heavy daily use or bladder disease. "Medical redirection" means moving to supervised therapy, which is not the same as abstinence.*

What changes the outcome

- **Ignoring bladder or kidney symptoms.** The Kernel says these come before the supplement stack and everything else.
- **Mixing with GHB, opioids, alcohol, or benzodiazepines,** or using benzodiazepines to manage withdrawal without a prescription.
- **Going through days 1 to 5 alone.** They are the highest relapse window.
- **Skipping grounding to go straight to transcendence work.** The Kernel says presence must come first.
- **Leaving the underlying depression, trauma, or pain untreated.** The Kernel calls this not optional for durable recovery.
- **Cannabis or other dissociative substances,** which can significantly worsen depersonalization.
- **Ignoring CYP2B6.** Your true exposure may be higher than your dose history, and so may your bladder risk.
- **Self-administering "therapeutic" ketamine.** The Kernel treats escalation outside a clinical container as recreational use disorder.

- **A lapse.** The Kernel treats it as information, not judgment (Protocol 21). It is also a bladder and overdose-risk event with no antidote: do not use alone, do not mix, and return to urology if symptoms recur.

How to read the evidence behind the outcomes

The Main Book marks claims with an Evidence Tier: Established, Probable, Emerging, Author/System Experience, and Controversial or Mixed. This guide's reading: ketamine-associated uropathy, the aspiration and mixing risks, and the absence of an antidote are documented and serious. The Kernel notes esketamine's FDA approvals for treatment-resistant depression and, in 2020, for major depression with acute suicidal ideation, and describes TMS as strongly evidenced for treatment-resistant depression. The supplement stack, the bladder supplements, the peptide layer, the percentage projections, and the years 3 to 10 trajectory sit lower on that scale. The Kernel's spiritual framing, including the "counterfeit sacred," its comparison of meditative absorption states to ketamine dissociation, and its breathwork and float-therapy claims, is interpretive and sits at the weak end for evidence. Bring all of these to your clinicians as questions, not as facts.

Take these to your clinicians

- A urologist first, if you have any bladder symptoms: your ketamine history, your CYP2B6 status if known, and a request for cystoscopy, kidney function tests, and follow-up every three months for the first year.
- An honest account of your use: form, how much, how often, and every other substance, so mixing risks and withdrawal can be planned.
- Your CYP2B6, CYP3A4, COMT, and MTHFR results, and any liver symptoms or abnormal liver tests.
- What ketamine was treating for you (depression, trauma, pain, anxiety), and a request for direct treatment, including a candid conversation with an addiction psychiatrist about TMS, SSRIs, and whether supervised therapeutic ketamine is appropriate.
- Every supplement you take, with doses, so interactions can be checked, and a request that your urologist review any bladder supplements first.